

# Investigating the adoption of co-creation in prosthetic hands.

**Hands of X is about materials, choice and ownership in the co-design of prosthetics.**

Most innovations in prosthetics still tend to be medically-framed or technology-driven, offering two extremes: anatomical realism or bionic cyborg hands. *Hands of X* affords people with limb difference the possibility of co-creating simple and understated prosthetic hands. In appearance these hands are not “super-realistic” or “super-human” they are “super-normal” (Pullin 2018).

The project has received academic and design recognition, it featured in the exhibition *Access+ Ability* at the Cooper-Hewitt Smithsonian Design Museum in New York; was showcased by the V&A Dundee; and received an award for public engagement in research.

## Co-Design

**Hands of X engaged with prosthesis-wearers as participants, prosthetists and the prosthetics industry. It involved methods common in art schools yet unusual in hospitals: co-creation, experience prototyping and service design.**

This cross-fertilization is the subject of *Design meets disability* (Pullin, 2009) a manifesto that already influences assistive technology, design and disability studies.

The initial project led by Pullin and Cook (Cook & Pullin 2019) produced a collection of prototype prosthetic hands featuring a palette of materials that had connotations with clothing and the everyday. The experience of the service was prototyped, with prosthesis-wearers being offered consultations in a fashion eyewear retail environment rather than a limb fitting centre (in which clinical assessment would still take place). This involves wearers curating a variation on a standard design, a meaningful choice that afforded a sense of ownership: of having created their hand. It also elicited reflections on how little sense of connection some wearers have with their prosthesis at present.

*Hands of X* prioritizes the social engagement in the processes of limb-fitting. The ‘X’ in *Hands of X* refers to the wearer; creating a sense of ownership is central - whose hand is it anyway?



Above: 11 material swatches, 5 'jigsaw hands' and 2 prototype hands. Photograph courtesy of the Cooper Hewitt Smithsonian Museum of Design, New York, from *Access + Ability* exhibition, curated by Cara McCarty.  
Top: Service experience prototype in Cubitts eyewear. Kings Cross, London, June 2017.

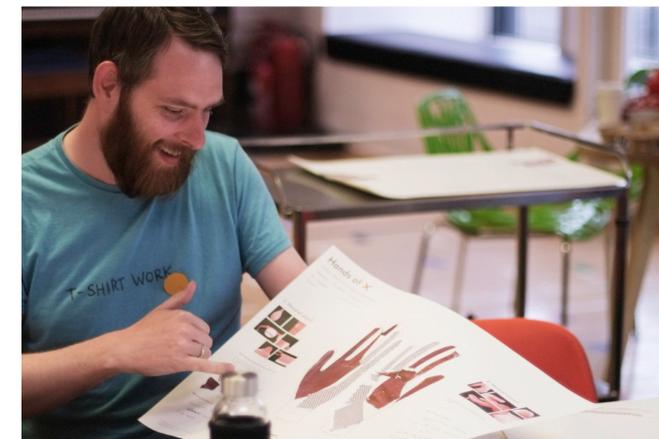
## Making Hands of X happen: Innovation and Healthcare

**Changes in delivery of NHS ophthalmic services brought about a revolution in the eyewear sector. Spectacles are now seen as accessories rather than merely medical devices.**

Gooding sees parallels between this research and the history of NHS glasses provision (Gooding 2017) and investigates the future impact for *Hands of X* in the real world.

Reports from academia and healthcare charities such as 'Cracking the Innovation Nut' and 'Against the Odds' document the barriers to introducing new ideas, products and service delivery in the healthcare sector (Heitmueller 2015; Albury et al. 2018). Even research piloted in healthcare settings with full clinical evidence is struggling to be adopted and spread (Collins 2018).

Recent initiatives from the National Innovation Accelerator programme and the AHSNs are opening up opportunities, but it is apparent that clinical champions, academic support, and professional backing is essential for uptake and adoption.



Above: Corinne Hutton exploring material swatches. Touching is an important part of the experience.

Above left: Artist and wearer Andrew Gannon discusses his speculative hand design

Left: Writer and wearer Eddie Small discusses hand prototypes in various materials with Pullin

## References

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## Researchers

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## Poster Design

Dr Andrew Cook (Lead Designer, Hands of X, DJCAD, University of Dundee; Founder of Laughing Stock Eyewear)

## Our challenge and an invitation to contribute

**Together Gooding and Pullin's objective is to further the real-world impact of designed and/or disability-led projects delivering healthcare within a social model of disability. We invite colleagues to share their experience and insight and, if *Hands of X* resonates, to join us in effecting change.**

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